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# NUMBERS & ODDITIES #
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-::: N&O #75, July 2004 :::-

The numbers scene was very slow this month which made it possible for me to study a lot of numbers related notes from the past few years which resulted in updated M89 and MX info. Fritz did the same with his M51 notes and updated M51's profile.

I owe many thanks to this month's contributors: Al, Takashi, Tomonori, Manolis (via E2K), Fritz, Dave, Leif, Japan Ute Monitor and to those who wish to remain anonymous.

Paul Beaumont has written an informative series of articles about numbers stations for Short Wave Magazine. The first two articles were published in July and August and the third and final one will appear in next month's edition.

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★ XP REVEALED ★

Did you ever wonder how the Russians invented their Polytone systems (XP etc)? Well, it took some time but with the help of a reliable source we finally found out.

Picture this:

A former head of the KGB once had to entertain his kids and their friends. But what does a KGB father do to make his kids happy? Play fun Cold War games? Play battleships? No, too rough for the little ones. So, what else can you do? Hire clowns? Play Russian Roulette? Wrong again. Our friend is quite musical and he produced his entire collection of nose whistles, kazoos, mouth harps and harmonicas and gave them to the kids to play with.

He sat down, picked up an harmonica and learned the kids how to play various notes on that instrument. After a while the KGB agents who were guarding the mansion noticed how much fun the kids had and they too let their hair down. They tried to talk to each other with the harmonica in

their mouth. Now, that was great fun!

Back at work the agents told their friends and boss about the party and how much fun they had playing with the music thingy. From that moment on things moved rapidly and in no time the KGB had developed a secret language that used musical notes instead of figures. All agents were equipped with an harmonica so that they could communicate with each other in the new exciting secret language. The formula appeared to be highly successful and the KGB decided to expand the system and use it to communicate with their agents abroad. That, my friends, was the start of the Polytone transmissions. The first transmissions were played live on the harmonica but after a while the good old harmonica was replaced by the computer system that we know now.

So, now you know as much about the subject as I do.

You don't believe me? Then listen to a pre-computer age XP transmission. It's on the N&O sound samples page.

Huh? No, it isn't me playing the harmonica. It is WUN member Dave Payne Sr. from Vienna, West Virginia who recently sent me his XP-on-harmonica recording. When I heard the recording of Dave's harmonica, I suddenly realised that Dave must be the Godfather of the Polytone system :-)
Thanks a million for the recording, Dave!!!

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* VOICE STATIONS *

As usual the E03 and E04 IDs were compiled by respectively Al and Tomonori.

::: E03 - LINCOLNSHIRE POACHER

IDs heard in the first half of the month:

| UTC | Mon | Tue | Wed | Thu | Fri | Sat | Sun | UTC |
|------|-------|-------|-------|-------|-------|-------|-------|------|
| 1200 | 87235 | 87235 | 87235 | 87235 | 87235 | 87235 | 87235 | 1200 |
| 1300 | 44777 | 44777 | 44777 | 44777 | 44777 | 44777 | 44777 | 1300 |
| 1400 | 60336 | 98270 | 88880 | 73096 | 87235 | 72926 | 06323 | 1400 |
| 1500 | 06323 | 60336 | 98270 | 88880 | 73096 | 87235 | 25347 | 1500 |
| 1600 | 25347 | 06323 | 60336 | 98270 | 88880 | 73096 | 72926 | 1600 |
| 1700 | 72926 | 25347 | 06323 | 60336 | 98270 | 88880 | 87235 | 1700 |
| 1800 | 87235 | 72926 | 25347 | 06323 | 60336 | 98270 | 73096 | 1800 |
| 1900 | 73096 | 44777 | 72926 | 44777 | 06323 | 60336 | 44777 | 1900 |
| 2000 | 44777 | 87235 | 44777 | 25347 | 44777 | 06323 | 88880 | 2000 |
| 2100 | 88880 | 73096 | 87235 | 72926 | 25347 | 44777 | 98270 | 2100 |
| 2200 | 98270 | 88880 | 73096 | 87235 | 72926 | 25347 | 60336 | 2200 |

Second half of the month:

| UTC | Mon | Tue | Wed | Thu | Fri | Sat | Sun | UTC |
|------|-------|-------|-------|-------|-------|-------|-------|------|
| 1200 | 93050 | 93050 | 93050 | 93050 | 93050 | 93050 | 93050 | 1200 |
| 1300 | 86170 | 86170 | 86170 | 86170 | 86170 | 86170 | 86170 | 1300 |
| 1400 | 73559 | 64419 | 69049 | 64887 | 93050 | 93755 | 08672 | 1400 |
| 1500 | 08672 | 73559 | 64419 | 69049 | 64887 | 93050 | 16423 | 1500 |
| 1600 | 16423 | 08672 | 73559 | 64419 | 69049 | 64887 | 93755 | 1600 |
| 1700 | 93755 | 16423 | 08672 | 73559 | 64419 | 69049 | 93050 | 1700 |
| 1800 | 93050 | 93755 | 16423 | 08672 | 73559 | 64419 | 64887 | 1800 |
| 1900 | 64887 | 86170 | 93755 | 86170 | 08672 | 73559 | 86170 | 1900 |
| 2000 | 86170 | 93050 | 86170 | 16423 | 86170 | 08672 | 69049 | 2000 |
| 2100 | 69049 | 64887 | 93050 | 93755 | 16423 | 86170 | 64419 | 2100 |
| 2200 | 64419 | 69049 | 64887 | 93050 | 93755 | 16423 | 73559 | 2200 |

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::: E04

IDs heard in the first half of the month:

| UTC | Sun | Mon | Tue | Wed | Thu | Fri | UTC |
|------|-------|-------|-------|-------|-------|-------|------|
| 2200 | 18660 | 24369 | 99230 | 88742 | 24369 | | 2200 |
| 2300 | 24369 | 99230 | 88742 | 24369 | 17166 | | 2300 |
| 0000 | | 99230 | 88742 | 24369 | 17166 | 68984 | 0000 |
| 0100 | | 88742 | 24369 | 17166 | 68984 | 16440 | 0100 |
| 1000 | | 24369 | 17166 | 68984 | 16440 | 18660 | 1000 |
| 1100 | | 17166 | 68984 | 16440 | 18660 | 24369 | 1100 |
| 1200 | | 68984 | 16440 | 18660 | 24369 | 99230 | 1200 |
| 1300 | | 16440 | 18660 | 24369 | 99230 | 88742 | 1300 |

Second half of the month:

| UTC | Sun | Mon | Tue | Wed | Thu | Fri | UTC |
|------|-------|-------|-------|-------|-------|-------|------|
| 2200 | 57130 | 13962 | 89816 | 80676 | 13962 | | 2200 |
| 2300 | 13962 | 89816 | 80676 | 13962 | 16713 | | 2300 |
| 0000 | | 89816 | 80676 | 13962 | 16713 | 64072 | 0000 |
| 0100 | | 80676 | 13962 | 16713 | 64072 | 54836 | 0100 |
| 1000 | | 13962 | 16713 | 64072 | 54836 | 57130 | 1000 |
| 1100 | | 16713 | 64072 | 54836 | 57130 | 13962 | 1100 |
| 1200 | | 64072 | 54836 | 57130 | 13962 | 89816 | 1200 |
| 1300 | | 54836 | 57130 | 13962 | 89816 | 80676 | 1300 |

Schedules:

| UTC | frequencies |
|------|------------------|
| 2200 | 18864, 24644 kHz |
| 2300 | 18864, 21866 kHz |
| 0000 | 18864, 21866 kHz |
| 0100 | 19884, 21866 kHz |
| 1000 | 20474, 23461 kHz |
| 1100 | 18864, 23461 kHz |
| 1200 | 18864, 23461 kHz |
| 1300 | 18864, 21866 kHz |

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::: E25

Via the E2K mailing list I received a report from Manolis. He copied an E25 transmission on 7 July at 1240 UTC on 9450 kHz. He describes the transmission as follows:

Intro music followed by an Arab man calling "222". Then at 1253 UTC "Message" x3 an the message itself "5091 1201 0410 4672 4220 4979 7576 1908 1858 0863 0410". At 1254 UTC "Repeat" x3 and the message again followed by "End of message, end of transmission"

Manolis points out that group 3 (0410) is repeated at the end. He noticed that before in a message from 17 February at 1245 UTC when the 3rd group (0210) was repeated at the end: "9549 6501 0210 3553 1254 7559 0481 6642 3755 0210"

It seems to be a fixed protocol most of the times, Manolis. I have noticed it before. Here are two other examples from last year: "7496 3161 3310 0603 6582 8530 3304 1920 9177 7288 7467 4674 7787 4361 9306 3310" and "9394 3531 6210 1467 6518 5690 2666 5481 4555 7854 3353 8560 6210".

That this is not always the rule proves M25 by sending a different one at 1245 UTC on 27 & 28 July. (copied by Manolis)

1146 UTC Arab OM calls "730" many times.

1149 UTC "Message" x3

5495 9501 2310 4455 0101

6656 8860 6207 4287 6057

(The 3rd and the last group now not the same)

1150 UTC "Repeat" x3

5495 9501 2310 4455 0101

6656 8860 6207 4287 6057

1150 UTC "End of message, end of transmission" in a hurry! There was a

background noise while the mic was open.
1243 UTC Carrier.
1245 UTC Music.

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::: V24

South Korean YL heard on 6215 kHz AM at 1400 UTC.

<<<<<>>>>>

::: V25

Chinese female YL on 9239 kHz AM (figures ID) at 1500 UTC. Also on 8870 kHz AM at 1300 UTC.

<<<<<>>>>>

::: V26

The Chinese/English numbers station was observed on 6448//8621 kHz LSB at 1200 UTC.

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* MORSE STATIONS *

::: M16

DGSE related station "8BY" is one of the oldies that is still around. It uses the following set of frequencies: 7668, 10248, 12075, 14931, 18415, 20946 kHz.

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::: M18

4503 kHz throughout the month sending time signals (UTC+4).

<<<<<>>>>>

::: M21

The Russian Air Defense is active on 5221.5 kHz (id "0").
5873.0 kHz (id "0").
9222.0 kHz (id "0").

<<<<<>>>>>

::: M22

2680, 2800, 4241, 4331, 5159, 6379, 8103, 10046, 12984 kHz used for traffic.

<<<<<>>>>>

::: M51

| Frequency | Period |
|----------------|---------|
| ----- | ----- |
| 5807 | week 27 |
| 4896.5 | week 27 |
| 4885.5//5455 | week 27 |
| 4896//4550 | week 27 |
| 6945.5//4638.5 | week 28 |
| 5432.5//6933.5 | week 28 |
| 7390//7330 | week 28 |
| 3240//3530 | week 28 |
| 3612 | week 28 |
| 5190//5907.5 | week 28 |
| 5142//4910 | week 29 |
| 2366 | week 29 |
| 3784 | week 29 |
| 4910//5938 | week 30 |
| 4935 | week 30 |
| 5055 | week 30 |

::: M51 Profile Update

Valeriano Martin was one of the most active M51 monitors in the late 1990's. Unfortunately he hasn't much time for the hobby these days. Fritz has compared M51's current behaviour with Valeriano's M51 profile from 2002.

N&O Nr. 22 of Jan. 2000 offered a profile written by Valeriano Martin, which based on facts gathered in 1999. Valeriano described M51 in detail and reported for the first time that FAV22 is part of M51. Some years later I tried to compare, whether this very active network still behaves in the same way.

1. Major changes of the network

Actually M51s transmissions did not change very much in the mean time. Important changes are:

The network is on the air from early Monday morning until early Friday morning (apart from FAV22).

A set of 6 pairs of parallel frequencies is used for one week only. Some single frequencies may be operational months later again, but almost never the following week. I did not find the same pair is used again.

There are interruptions of the transmission between a few minutes up to say 30 min. In this time none of the other frequencies is used.

The weekly "schedule" shows even more exceptions than before. The same frequencies may be on the air for up to 9 hours incessant.

2. Preamble and messages

M51 = nr 36 m 12 07:20:34 2004 = txt

| | |
|----------|--|
| nr 36 | message number starting 01, reset after 90 |
| m | first letter of month, (Juin, Juillet ambiguous) |
| 12 | day of month |
| 07:20:34 | transmission time in CET/CEST |
| 2004 | year |
| txt | 100 5LG, no repeats, no Ñfirst groupi. |

FAV22 vvv vvv vvv de FAV22 FAV22 FAV22

QLH 3881/6825 khz. vitesses annoncees l'egerement superieure.

lecon 01-1/1 vitesse 480 codÉ = txt + (Mondays)

lecon 01-1/2 vitesse 480 clair = txt +

lecon 01-1/3 vitesse 480 codÉ = txt +

lecon 01-1/4 vitesse 480 clair = txt +

Lessons 2 to 5 with speeds up to 960 (96 char./min) follow Tuesday until Friday.

There is a (regular?) transmission on Sunday mornings as well.

3. Frequency range

M51 mostly uses frequencies between 3 and 7 MHz. The lowest observed frequency is 2366 kHz, the highest 18444.5 kHz. The choice of frequencies is such, that the target area - probably France - may not been far away; throughout the year, day or night, similar frequencies are chosen. Certain ranges seem to be spared out:

| | |
|-------------|--------------------------------------|
| 2850...3025 | Aeronautical Mobile |
| 3400...3500 | Aeronautical Mobile |
| 4063...4438 | Maritime Mobile |
| 5480...5680 | Aeronautical Mobile |
| 6200...6765 | Maritime Mobile, Aeronautical Mobile |

M51 does however not make excuses for BC and Radio Amateurs.

FAV22 operates on 3881//6825 kHz.

This is a primitive distribution curve frequency vs intercepts 1-1-2003/15-7-2004. One tick = 1 intercept/day/frequency. As you can see the range 4500-5500 kHz is highly popular.

| | |
|------------------|--|
| 2000- 2500 kHz: | o |
| 2500- 3000 kHz: | oo |
| 3000- 3500 kHz: | ooooo |
| 3500- 4000 kHz: | oooooooooooooooo |
| 4000- 4500 kHz: | oooo |
| 4500- 5000 kHz: | oo |
| 5000- 5500 kHz: | oo oo oooooooooooo |
| 5500- 6000 kHz: | oooooooooooooooooooooooooooooooooooo |
| 6000- 6500 kHz: | oooooooooo |
| 6500- 7000 kHz: | oooooooooooooo |
| 7000- 7500 kHz: | oooooooooooooooooooo |
| 7500- 8000 kHz: | none |
| 8000- 8500 kHz: | oooooo |
| 10000-11000 kHz: | ooo |
| 14800 kHz: | o |

4. Schedule

First loggings of M51 have been made 1996.

M51 uses 6 pairs of frequencies/week, which all are used daily. I am not sure, if this is always the case. A pair may be spaced a few kHz or as much as 5 MHz. They are changed randomly. Sometimes a certain sequence is followed, sometimes not. The operation time may vary between 30 min and 8 or more hours. Favorite times for frequency changes are h+5, h+25 or h+55 (or any other), but never exactly on the hour/half hour. Frequencies change without prior notice and in between the characters, just to continue on the new frequency.

FAV22 is on the air Mon to Fri at about 0830z-0900z and 1130z-1200z (repetition) and Sunday.

The following sked of week 04/28 is an example. Observation time is limited for obvious reasons, but it is a fact M51 is on the air during the night too.

| UTC | Monday | Tuesday | Wednesday | Thursday | Friday |
|------|--------|---------|-----------|----------|--------|
| 0600 | A | B | A | C | |
| | A | B | A | C | |
| 0700 | A | B | A | C | |
| | A | A | A | C | |
| 0800 | B | A | C | F | |
| | FAV | FAV | FAV | FAV | FAV |
| 0900 | FAV | FAV | FAV | FAV | FAV |
| 1000 | | B | F | E | |
| | | B | F | E | |
| 1100 | | B | F | E | |
| | FAV | FAV | FAV | FAV | FAV |
| 1200 | FAV | FAV | FAV | FAV | FAV |
| 1300 | C | D | B | A | |
| | C | D | B | A | |
| 1400 | C | D | B | A | |
| | F | D | B | B | |
| 1500 | F | C | D | D | |
| | E | C | C | D | |
| 1600 | E | F | C | D | |
| | E | F | C | D | |
| 1700 | E | F | C | D | |
| | E | F | C | D | |
| 1800 | E | F | C | D | |
| | E | F | C | D | |
| 1900 | E | F | C | D | |
| | E | F | C | D | |
| 2000 | E | F | C | D | |
| | E | F | C | D | |

Frequencies: A 3240 //3530
 B 3612 //?
 C 4638.5//6945.5
 D 5190 //5907.5
 E 5432.5//6933.5
 F 7330 //7390
 FAV 3881 //6825

5. Properties of M51

The keying of M51 is particular, because the dashes are too long compared to the dots and pauses. Automatic reception is not possible

with low cost SW controlled decoders. One of the two frequencies in use is constantly impaired by a hissing hum. I cannot remember, when that started.

6. M51 and FAV22

Monitoring M51 soon reveals that any irregularities in the transmissions are connected with FAV22. M51 stops its transmission 10 to 20 min before FAV22's Morse lessons. A few minutes later some M51 characters quite often can be heard on 6825 kHz. Or M51 stops too early and is back after some minutes to send a few 5LGs until it is switched off again. M51 and FAV22 both use "VA", "=" is not sent as one character. The Morse lessons sometimes last 25, sometimes around 35 minutes. M51 is inactive for around 75 minutes. As Valeriano reported, the flow of messages continue in this time; it is unlikely, they are sent on another, never discovered, frequency.

7. What is the purpose of M51?

Personally I doubt M51 does provide information for anybody. In this case the text is meaningless and is not meant to be copied. Maybe the French Army folks are supposed to do the same as we do: try to find all the frequencies and report the preambles for verification. (Fritz, in my opinion M51 is just another training station. -Ary-)

Faulty reports of preambles, which have not been sent during the mute periods, can be recognised instantly. Transmission times vary deliberately. During the night frequencies change not as often as during office hours. Frequency "A" can be identified by the background hum. And to impede auto-reception the rhythm has been modified.

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::: M62

Frequency: 3485 kHz.

1.7-10.7: B3ET B3ET B3ET = RNJ5 RNJ5 RNJ5 + QSA 0/1
11.7-20.7: J7XD J7XD J7XD = D3QK D3QK D3QK + QSA 0/1
21.7-31.7: QR2U QR2U QR2U = KP6F KP6F KP6F + QSA 0/1

<<<<<>>>>>

::: M82

The North Korean station was observed on 4700 kHz with

"VVV JVG DE BML QSA3 QSA? QTC 732 QTC NR 71259 12t8t5".

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::: M89

Because it was very quiet on the numbers front this month, I had the time to study my M89 notes from the past few years. The review covers everything that I know of this network.

Although not confirmed (yet) it is believed that this is a Chinese naval network. Extensive direction finding activities have pinpointed the transmitter sites near Guangzhou, Qingdao and the Dalian/Lushan areas. Qingdao is the HQ of China's North Sea Fleet, while Lushan is another major base of the North Sea Fleet and Dalian is one of the largest training facilities of the navy. Guangzhou is one of the largest bases of the South Sea Fleet.

L9CC, NH8T, 2SLC seem to originate from the Dalian/Lushan area; 4XML from Qingdao and L4FC from Guangzhou. Recently new bearings were taken from a 4XML transmission, this time on 10822 kHz. It appeared that this transmission was coming from central China, approximately 3836N 10700E. It is likely from either Lanzhou or Xi'an, a different location than the one used for the 8 MHz transmissions, at least at the time when the bearings were taken earlier this year. It is however quite possible that all callsigns are being transmitted via all stations.

| Callup | Frequencies |
|---|---|
| ----- | ----- |
| V ABYZ ABYZ ABYZ DE 6PXJ 6PXJ | 3340, 3440, 4567, 4575, 5600, 6780, 6785 kHz. |
| V BFR7 BFR7 BFR7 DE 4XML 4XML | 3378.5, 3380, 5645, 5756, 8189.5, 8303, 8308, 8455, 8457, 8257, 10822 kHz. |
| V BJCC BJCC BJCC DE 3SA 3SA | 16664 kHz. |
| V CP17 CP17 CP17 DE L9CC L9CC | 3456, 3527, 3533, 3536.5, 3540, 3542, 3543.5, 3545, 3547.5, 3549, 3550, 3552, 3553, 3554, 3556, 3561, 3564, 3646, 3673.5, 5402, 5423, 7000, 7034, 7038.8, 7041, 7044, 7045.5, 7047, 7049, 7050, 7051, 7053, 7055, 7056.4, 7058, 7060, 7063, 7066, 7068.5, 7072.8, 7076, 7079, 7088, 7092.6, 7100, 9266.5, 9436.9 kHz. |
| (This is the most active one. It uses many freqs in the 3 and 7 MHz bands. Strangely enough, I have never seen a report of a transmission > 9 MHz.) | |
| V DKLO DKLO DKLO DE SDKL SDKL | 6458 kHz. |

| | |
|-------------------------------|---|
| V FXP4 FXP4 FXP4 DE YZL6 YZL6 | 5795, 9185, 10711 kHz. |
| V GM1W GM1W GM1W DE B7UA B7UA | 4415 kHz. |
| V GM2Z GM2Z GM2Z DE PNW9 PNW9 | 4824, 4831, 5628.5, 5629.3, 5631, 5633.5, 6992, 6981.5, 7623 kHz. |
| V GUGM GUGM GUGM DE Z702 Z702 | 8808 kHz. |
| V HNR2 HNR2 HNR2 DE CN9R CN9R | 9071 kHz. |
| V IBEH IBEH IBEH DE L4FC L4FC | 4762, 4769, 4771.5. 6501, 6505.5, 7620 9343.5 kHz |
| V JS4X JS4X JS4X DE 6DU0 6DU0 | 5520, 5241, 6982, 9071.5 kHz. |
| V LA5H LA5H LA5H DE NH8T NH8T | 4832, 4874, 5382, 5386, 5410.5, 5412, 5756, 5874, 6507, 7300, 7310, 7313, 8038, 8042 kHz. |
| V MW3D MW3D MW3D DE 2SLC 2SLC | 3330, 4435.4, 4440, 5580, 7074 kHz. |
| V ONMT ONMT ONMT DE B9VW B9VW | 5719.0 kHz. |
| V RXP7 RXP7 RXP7 DE CZT2 CZT2 | 7778, 8650, 10860 kHz. |
| v TW9C TW9C TW9C DE A2NK A2NK | 5795 kHz. |
| V U80V U80V U80V DE 1RMK 1RMK | 3570 kHz. |
| V YELM YELM YELM DE FC1T FC1T | ??? |

and finally an odd one, probably a test (vvv CQ msg):
V CQMSG CQMSG CQMSG DE CQMSG CQMSG on 3639, 4146 kHz.

<<<<<>>>>

::: MX

Who has not heard them? During at least 35 years many of you have reported the various channel markers and cluster beacons from the former Soviet Union and later from the separate countries. I have read many speculations about these "mysterious" single-letter-beacons. What are they? Who is using them? Believe it or not but I even read an article that stated that the beacons were intended as homing beacons for extra terrestrials. Yes, really!!! Others state that they are being used by vessels on Russia's rivers. I'm not sure what they meant by that. One of the best was the one about the "buzzer". The author says that the buzzer

is in fact the safety transmitter of the Tsjernobil nuclear power plant. When the buzzer stops, you really should panic because that would mean that a melt down is about to happen. Well, the power plant was switched off many years ago and the buzzer is still there. :-)

I am not sure if all frequencies are still being used. Except for the historic beacons all the stations were heard during the past two years on the listed frequencies, some of them only a couple of times. Stations like "P" and "V" are using a whole bunch of frequencies but only few of them are regularly used.

- Channel markers:

"C" - Moscow: 4302, 5306, 10308, 10612, 13636 kHz.
User: Russian navy.

"D" - Odessa: 6550 kHz.
User: Russian/CIS navy.

"F" - Gdynia (unconfirmed; I am waiting for the final df results)
2842.8, 3798.5, 4315, 4555.85 kHz.
User: probably the Polish navy. The markers have been active during Polish naval exercises.

"F" - Vladivostok: 20127 kHz.
User: Russian navy.

"K" - Petropavlovsk Kamchatskiy: 5920 kHz.
User: Russian navy.

"L" - Tirana: 3336.2, 4091.5, 6672.4, 8183 kHz; the latter two are harmonics. The marker has not been heard since late June.
User: unknown.

"P" - Kaliningrad: 3208, 3262, 3291, 3322, 3649, 3699.5, 3772, 3807, 3837, 4031, 4043, 4051, 4210, 4476, 4605, 4828, 4848, 4899, 5111, 5860, 5982, 6203, 8492, 16204 kHz. Usually on two parallel frequencies.
User: Russian navy.

"R" - Ustinov: 3195, 4325.8, 4558, 4828, 5154, 5465.8, 6390, 7452, 7550 kHz.
User: Russian Strategic Missile Troops.

"S" - Arkhangelsk: 4301 kHz.
User: Russian navy.

"V" - Khiva: 3175, 3317, 3534, 3658, 4446, 4498.5, 4575, 4646, 4878,

5340, 5342, 7002, 7038.8 (harmonic?), 7630, 13539, 15064.7, 21070.6, 25250 kHz. 3658 kHz is the main frequency. The others are irregular.

User: Major relay facility mainly used by the Russian/CIS navy.

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"I" - 3814.8, 9090, 9188.5 kHz. Heard on respectively 6 and 16-1-2004. Probably not a letter but a 2-dots marker.

"T" - 6934.0 kHz. Unid. Probably not a letter but single dash marker.

<<<<<>>>>>

Several markers do not transmit letters but an odd sound, hence their nicknames.

"Yelper" - Unid location in Russia: 3650 kHz. Not heard since 2001.

"Pip" - Rostov-Volgograd area, Russia: 3756, 5448 kHz.
User: Russian Strategic Missile Troops.

"Squeaky Wheel" - Russia: 3815, 3828.9, 5461.5 kHz. Note that 3828.9 kHz is the only active frequency nowadays.

"Buzzer" - Vlasikha (Odintsovo-10), Moscow region, Russia.
4625 kHz. In the period before 1990 this station transmitted a pip. The buzzer was introduced in early 1990. The "buzzer" is around since at least 1973.
User: Russian Strategic Missile Troops.

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- Cluster beacons:

"D", "P", "S" and "C" are located in Europe while "F", "K", "M" and currently inactive "A" are located in the Asian part of Russia. The cluster beacons are being used as propagation beacons and are not always active. Particularly the European beacons are often switched off. They are only switched on during exercises or real naval actions. To give you an example: several European beacons were switched on when the Kursk was being salvaged.

The beacons are clustered around center frequencies. The current center frequencies are: 3595, 4558, 5154, 7039, 8495, 10872, 13528, 16332 and 20048 kHz. Each beacon has its own slot. The European beacons operate on frequencies below the center frequency, while the Asian beacons

operate above the center frequency. Moscow always operates on the center frequency.

Cluster beacon slots:

- .7 "D", Odessa
- .8 "P", Kaliningrad
- .9 "S", Arkhangelsk
- .0 "C", Moscow
- .1 ? possibly "A" (hasn't been active for quite a while)
- .2 "F", Vladivostok
- .3 "K", Petropavlovsk Kamchatskiy
- .4 "M", Magadan

Example of a cluster:

"D" - 8494.7
"P" - 8494.8
"S" - 8494.9
"C" - 8495.0
? - 8495.1
"F" - 8495.2
"K" - 8495.3
"M" - 8495.4

Note: the Asian beacons apparently need to be calibrated as they often transmit odd strings like AAINNM, TEEEEE, MMMAMA, AAINNM, MMMAMA, etc. Sometimes dots become dashes or part of the morse code disappears so that an other letter is transmitted. Examples: T, E, U, TA, UA. The Magadan beacon ("M") has been drifting during the past months. Spurious transmissions of the various Asian beacons have been heard on 7000 kHz ("F" and "K"), while "K" has been heard on 7078 kHz. A malfunctioning "P" beacon transmitted "HP" recently on 4558 kHz.

<<<<<>>>>

- Historic beacons/markers

During the Cold War a number of other beacons and channel markers have been around. I am sure that this list is not complete. Additions are most welcome.

| Frequency | callsign | location |
|-----------|-----------|--|
| ----- | ----- | ----- |
| | Ch (---.) | unid location |
| | Yu (..--) | Kizyl Orda, Russia |
| 3043.0 | OB | unid location, Russia |
| 3070.0 | X | unid location. Not from the Czech Rep. |

| | | |
|---------|-----------|---|
| 3088.0 | L | Leningrad (now St. Petersburg), Russia (Soviet navy marker) |
| 3090.0 | L | Leningrad (now St. Petersburg), Russia (Soviet navy marker) |
| 3092.0 | L | Leningrad (now St. Petersburg), Russia (Soviet navy marker) |
| 3415.0 | A | unid location |
| 3415.0 | OB | unid location, Russia |
| 3533.0 | W | Cuba (Soviet navy beacon) |
| 3564.0 | C | Moscow (Soviet navy marker) |
| 5308.0 | O | Moscow, Russia (Soviet navy beacon) |
| 5308.5 | L | Leningrad (now St. Petersburg), Russia (Soviet navy marker) |
| 5309.5 | Z | Mukachevo, Ukraine (Soviet navy beacon) |
| 5922.0 | X | Prague, Czechoslovakia (now Czech Rep.) |
| 6802.5 | J | unid location |
| 6803.5 | G | unid location |
| 7383.0 | N | unid location |
| 7395.0 | U | Kholm'sk and other locations. Jammer related. |
| 8682.0 | M | Magadan, Russia (Soviet navy beacon) |
| 8698.0 | B | Arkhangelsk, Russia (Soviet navy beacon) |
| 9001.6 | Y | unid location |
| 9111.0 | W | unid location in Europe. Definitely not Cuba |
| 9160.0 | Ya (.-.-) | unid location |
| 9322.0 | X | Prague, Czechoslovakia (now Czech Rep.) |
| 12149.5 | I | unid location |
| 13527.0 | Y | unid location |
| 20126.5 | E0 or J | unid location. Heard during a couple of weeks in 2002 |
| 26170.0 | L | Leningrad (now St. Petersburg), Russia (Soviet navy marker) |

-0-0-0-0-0-0-0-0-0-0-

* VARIOUS MODES *

- XSL: The Japanese naval stations with their typical slot machine sound can be found on 4153, 4231.5, 4291, 6250, 6417, 6445, 8313, 8588, 8588 and 8703.5 kHz.
- XSW: The Squeaky Wheel, a daily guest on 3828.9 kHz.
- S28: The Buzzer, very loud as always on 4625 kHz.
- S30: The Pip, good signal throughout the month on 3756 kHz.
- X06: Mazielka calls heard on 16221 kHz at 0752 UTC on 31-7.

- M42: Tfc on link 00063 at 0824 UTC on 31-7 (MFSK32).
Tfc on link 60047 at 0816 UTC on 31-7 (MFSK32).

-0-0-0-0-0-0-0-0-0-0-

* UNID STATIONS *

::: 2-SECONDS PIP

The still unid "pip-station" can be heard on 10470 kHz. Reception is the best in the Far East. It transmits one pip every 2 seconds.

<<<<<>>>>>

::: UNID 14563 kHz

Tom reports an unid morse station on 14563 kHz. He has heard it on 4 July at 0630 UTC when it transmitted "87 87 87" and on the 22nd at 1415 UTC it sent 5LGs. Transmission stopped at 1420 UTC. Reception was very weak in the USA.

Who is it?????

-0-0-0-0-0-0-0-0-0-0-

* LOGS SECTION *

| | | |
|--------|------|---|
| 3150.0 | E10 | PCD2 USB 15-6-2004 Tue 2330 (GG) |
| 3150.0 | E10 | PCD USB 17-6-2004 Thu 1930 (GG) |
| 3292.0 | M08a | M8a, weak/partially readable, i/p, not in sync with M8a on 10714 CW 29-6-2004 Tue 0100 (CrA-1) |
| 3292.0 | V02a | V2a, weak/readable, ID is 03151 07792 51752 USB 22-6-2004 Tue 0200 (CrA-1) |
| 3292.0 | V02a | V2a, weak/readable, ID is 25891 66993 28?91 USB 26-6-2004 Sat 0400 (CrA-1) |
| 3292.0 | V02a | V2a, fair/readable, ID is 19991 33156 51783, rpt of 0100 on 12119, M8a, bg USB 29-6-2004 Tue 0200 (CrA-1) |
| 3389.0 | M08a | M8a, weak/mostly readable, into message, V2a accompaniment CW 22-6-2004 Tue 0100 (CrA-1) |
| 3389.0 | V02a | V2a, fair/readable, into message, M8a accompaniment USB 22-6-2004 Tue 0100 (CrA-1) |
| 3389.0 | V02a | SS YL, noisy signal, not quite as bad as last night, ending "Final, final." USB 22-6-2004 Tue 0100 (DM) |
| 3389.0 | V02a | V2a, weak/readable, ID is 19991 33156 51783 USB 29-6-2004 Tue 0100 (CrA-1) |
| 3389.0 | V02a | Weak in Eastern PA.. lots of noise on freq. Better in USB than in AM. M8a could AM 29-6-2004 Tue 0400 (Red) |
| 3415.0 | XP | 0-msg AM 3-6-2004 Thu 2020 (HFD) |

| | | |
|--------|------|--|
| 3756 | S30 | The pip CW 31-7-2004 Sat 2001 (AB) |
| 3828.9 | XSW | Squeaky Wheel channel marker 31-7-2004 Sat 2001 (AB) |
| 3926.0 | M08a | (already in progress - no calls copied) CW 2-6-2004 Wed 1000 (MS) |
| 3926.0 | M08a | ID 22621 85801 47081 (AR=OE, BT=K) CW 4-6-2004 Fri 1000 (MS) |
| 4015.0 | E10 | CI02//6912 USB 2-6-2004 Wed 0045 (BS4) |
| 4015.0 | E10 | VLB2 USB 17-6-2004 Thu 1945 (GG) |
| 4017.0 | V02a | V2a, weak/readable, into message USB 22-6-2004 Tue 0300 (CrA-1) |
| 4017.0 | V02a | V2a, weak/readable, into message USB 29-6-2004 Tue 0300 (CrA-1) |
| 4027.0 | M08a | M8a, fair/readable, i/p CW 29-6-2004 Tue 0300 (CrA-1) |
| 4028.0 | M08a | M8a, strong/readable, into message CW 22-6-2004 Tue 0300 (CrA-1) |
| 4028.0 | V02a | Usual YL Spanish 5# sets. Off mid set at 0328. USB 5-6-2004 Sat 0308 (MT2) |
| 4028.0 | V02a | V2a, weak/readable, ID is 33??55 51789 8????, came on air and repeated ID twice USB 25-6-2004 Fri 0100 |
| 4031 | MX | Channel marker "P" CW 3-7-2004 0430 (PL2) |
| 4031 | MX | Channel marker "P" + 5FGs //4476 kHz CW 31-7-2004 Sat 1955 (AB) |
| 4153 | XSL | Slot machine 5-7-2004 1307 (TI) |
| 4165.0 | E10 | MIW2//5339 USB 2-6-2004 Wed 0115 (BS4) |
| 4231.5 | XSL | Slot machine 5-7-2004 1308 (TI) |
| 4270.0 | E10 | PCD2 USB 15-6-2004 Tue 2330 (GG) |
| 4270.0 | E10 | PCD USB 17-6-2004 Thu 1930 (GG) |
| 4291 | XSL | Slot machine 5-7-2004 1308 (TI) |
| 4329.0 | V02a | V2a, weak/readable, ID is 82293 13752 45342, weak M8a in bg USB 23-6-2004 Wed 0400 (CrA-1) |
| 4329.0 | V02a | S8 here USB 23-6-2004 Wed 0400 (ZW) |
| 4329.0 | V02a | Started CW M8a for 15 seconds then switched to voice V2a; S7 USB 30-6-2004 Wed 0400 (ZW) |
| 4329.0 | V02a | USB 30-6-2004 Wed 0400 (DM) |
| 4461.0 | E10 | FTJ 57 SVGRE USB 2-6-2004 Wed 0100 (BS4) |
| 4461.0 | E10 | FTJ 39 FQLG0 strong USB 15-6-2004 Tue 2330 (GG) |
| 4461.0 | E10 | FTJ 2 msgs : 29 AODVW/13 QGCDF USB 17-6-2004 Thu 1930 (GG) |
| 4461.0 | E10 | FTJ 29 OBQIT USB 20-6-2004 Sun 2330 (GG) |
| 4461.0 | E10 | FTJ 29 OBQIT USB 21-6-2004 Mon 2330 (GG) |
| 4461.0 | E10 | FTJ 29 XXDNV (followed by bursts) USB 23-6-2004 Wed 2330 (GG) |
| 4461.0 | E10 | FTJ USB 25-6-2004 Fri 2330 (GG) |
| 4461.0 | E10 | FTJ2 USB 26-6-2004 Sat 2330 (GG) |
| 4463.0 | E10 | FTJ2 USB 17-6-2004 Thu 1900 (GG) |
| 4476 | MX | Channel marker "P" + 5FGs //4031 kHz CW 31-7-2004 Sat 1955 (AB) |

4479.0 V02a V2a, weak/readable, into message, CODAR sweeping
 across freq USB 23-6-2004 Wed 0300 (CrA-1)
 4479.0 V02a Good signal S7 USB 30-6-2004 Wed 0300 (ZW)
 4479.0 V02a V2a, weak/readable, into message USB 30-6-2004 Wed
 0300 (CrA-1)
 4503 M18 Time strings CW 31-7-2004 Sat 2115 (AB)
 4560 E10 YHF1 AM 31-7-2004 Sat 2100 (AB)
 4560.0 E10 YHF 21 IYJ?F USB 17-6-2004 Thu 1900 (GG)
 4605 MX Channel marker "P" + 5FGs //5111 kHz CW/RTTY 1-8-2004
 Sat 0542 (AB)
 4625 S28 The buzzer 31-7-2004 Sat 2002 (AB)
 4700 M82 VVV JVG DE BML QSA3 QSA? QTC 732 QTC NR 71259 12t8t5 .
 CW 5-7-2004 1200 (TY)
 4780.0 E10 KPA2//6370 USB 2-6-2004 Wed 0115 (BS4)
 4780.0 E10 SYN2 USB 17-6-2004 Thu 1945 (GG)
 4880.0 E10 ULX 56 FNUHH USB 2-6-2004 Wed 0030 (BS4)
 4880.0 E10 ULX2 USB 17-6-2004 Thu 1930 (GG)
 4880.0 E10 ULX 29 AONZA (same msg as exactly 3 months before!)
 USB 28-6-2004 Mon 2000 (JS3)
 4973.0 S21 973, //5373 AM 17-6-2004 Thu 1742 (HFD)
 5074.0 M45 074-243/34=36136, //5474 CW 22-6-2004 Tue 1702 (HFD)

 5091.0 E10 JSR 35 JTCZQ with EZI2 mixup at beginning of call-up
 USB 17-6-2004 Thu 1900 (GG)
 5091.0 E10 JSR 105 FFKCR USB 17-6-2004 Thu 1930 (GG)
 5111 MX Channel marker "P" into RTTY at 1605 and back to "P"
 at 1609 UTC. CW messages like "58246 58246 33333 = =
 RDL RDL RDL 11111 5FG ." can also be heard CW
 31-7-2004 Sat 1545 (AB, FN)
 5111 MX Channel marker "P" + 5FGs //4605 kHz CW/RTTY 1-8-2004
 Sat 0542 (AB)
 5153.9 MX Cluster beacon "S" CW 31-7-2004 Sat 2031 (AB)
 5170.0 E10 SYN2//6930 USB 2-6-2004 Wed 0045 (BS4)
 5170.0 E10 KPA2 USB 15-6-2004 Tue 1815 (GG)
 5230.0 E10 VLB2 USB 2-6-2004 Wed 0045 (BS4)
 5230.0 E10 VLB2 USB 17-6-2004 Thu 1945 (GG)
 5230.0 E10 VLB2 USB 23-6-2004 Wed 0047 (TN)
 5339.0 E10 MIW2//4165 USB 2-6-2004 Wed 0115 (BS4)
 5339.0 E10 MIW2 USB 15-6-2004 Tue 1815 (GG)
 5373.0 S21 973, //4973 AM 17-6-2004 Thu 1742 (HFD)
 5435.0 E10 ART2 USB 2-6-2004 Wed 0130 (BS4)
 5435.0 E10 ART2 USB 15-6-2004 Tue 2330 (GG)
 5435.0 E10 ART2 USB 17-6-2004 Thu 1900 (GG)
 5435.0 E10 ART2 USB 17-6-2004 Thu 1930 (GG)
 5437.0 E10 ART 18 ZBMLJ USB 4-6-2004 Fri 0030 (GG)
 5437.0 E10 ART 18 ZBMLJ USB 5-6-2004 Sat 0030 (GG)
 5437.0 E10 ART 18 ZBMLJ USB 6-6-2004 Sun 0030 (GG)
 5437.0 E10 ART 18 ZBMLJ USB 7-6-2004 Mon 0030 (GG)

5437.0 E10 ART 18 ZBMLJ USB 8-6-2004 Tue 0030 (GG)
5437.0 E10 ART 42 CZNYG USB 10-6-2004 Thu 0030 (GG)
5437.0 E10 ART 18 AYQQM USB 12-6-2004 Sat 0030 (GG)
5437.0 E10 ART 18 AYQQM USB 13-6-2004 Sun 0030 (GG)
5437.0 E10 ART 18 AYQQM USB 13-6-2004 Sun 0030 (GG)
5437.0 E10 ART 9 GYVRQ (a bit off frequency) USB 21-6-2004 Mon
0030 (GG)
5437.0 E10 ART 9 GYVRQ USB 21-6-2004 Mon 0030 (GG)
5437.0 E10 ART 106 FMJQB USB 24-6-2004 Thu 0030 (GG)
5437.0 E10 ART 106 FMJQB USB 25-6-2004 Fri 0030 (GG)
5437.0 E10 ART 106 FMJQB (a bit off frequency) USB 26-6-2004 Sat
0030 (GG)
5437.0 E10 ART 106 FMJQB USB 27-6-2004 Sun 0030 (GG)
5474.0 M45 074-243/34=36136, //5074 CW 22-6-2004 Tue 1702 (HFD)
5762.0 V02a V2a, fair/readable, into message, weak V2a in bg USB
26-6-2004 Sat 0400 (CrA-1)
5771.0 V02a V2a, weak/mostly readable, i/p USB 26-6-2004 Sat 1500
(CrA-1)
5800.0 V02a distorted with tape ghosting AM 28-6-2004 Mon 0305
5820 E10 YHF1 AM 31-7-2004 Sat 2100 (AB)
5820.0 E10 YHF 21 IYJ?F USB 17-6-2004 Thu 1900 (GG)
5820.0 E10 YHF 107 WEPHN USB 17-6-2004 Thu 1930 (GG)
6250 XSL Slot machine 5-7-2004 1308 (TI)
6250.0 XSL Slot machine, weak, S1 USB 23-6-2004 Wed 1130 (ZW)
6270.0 E10 ULX2//7760 USB 2-6-2004 Wed 0100 (BS4)
6270.0 E10 ULX2 USB 17-6-2004 Thu 1930 (GG)
6270.0 E10 E10, fair/readable, calling ULX2, null message USB
24-6-2004 Thu 0100 (CrA-1)
6370.0 E10 KPA2//4780 USB 2-6-2004 Wed 0115 (BS4)
6379 M22 4XZ. Israeli navy Haifa CW 12-7-2004 2237 (DW)
6379.0 M22 into traffic CW 23-6-2004 Wed 0035 (TN)
6379.0 M22 CW 23-6-2004 Wed 0135 (TN)
6379.0 M22 CW 23-6-2004 Wed 0145 (TN)
6379.0 M22 CW 23-6-2004 Wed 0210 (TN)
6417 XSL Slot machine 5-7-2004 1309 (TI)
6417.0 XSL slot machine, weak, S1 USB 23-6-2004 Wed 1130 (ZW)
6445 XSL Slot machine 5-7-2004 1316 (TI)
6445.0 XSL slot machine, weak, S1 under QRM USB 23-6-2004 Wed
1130 (ZW)
6448 V26 Chinese/English numbers station //8621 kHz LSB
21-7-2004 1200 (TY)
6498.0 E10 PCD 41 S?ZHB USB 15-6-2004 Tue 1800 (GG)
6758.0 S17C 58031 AM 1-6-2004 Tue 1250 (HFD)
6758.0 S17C 54033 AM 5-6-2004 Sat 1250 (HFD)
6758.0 S17C 58034 AM 10-6-2004 Thu 1250 (HFD)
6758.0 S17C 66034 AM 12-6-2004 Sat 1250 (HFD)
6758.0 S17C 56038 AM 13-6-2004 Sun 1250 (HFD)
6758.0 S17C 83032 AM 14-6-2004 Mon 1250 (HFD)

6758.0 S17C 65033 AM 18-6-2004 Fri 1250 (HFD)
6758.0 S17C 66034 AM 20-6-2004 Sun 1250 (HFD)
6758.0 S17C 58034 AM 22-6-2004 Tue 1250 (HFD)
6758.0 S17C 67034 AM 24-6-2004 Thu 1250 (HFD)
6758.0 S17C 66034 AM 28-6-2004 Mon 1250 (HFD)
6758.0 S17C 6904? AM 29-6-2004 Tue 1250 (HFD)
6780.0 M01 025 CW 13-6-2004 Sun 0700 (HFD)
6840.0 E10 EZI2//9130 USB 2-6-2004 Wed 0100 (BS4)
6840.0 E10 EZI Group 96 LLEDG //9130 USB 12-6-2004 Sat 0130 (DM)
6840.0 E10 EZI USB 12-6-2004 Sat 0230 (DM)
6840.0 E10 EZI 44 LMYOB USB 15-6-2004 Tue 2330 (GG)
6840.0 E10 EZI2 USB 17-6-2004 Thu 1930 (GG)
6840.0 E10 EZI2 USB 20-6-2004 Sun 0100 (DM)
6840.0 E10 EZI message 28 (missed) message 71 OBUAD USB
20-6-2004 Sun 0130 (DM)
6840.0 E10 EZI ? in noise USB 23-6-2004 Wed 0133 (TN)
6855.0 V02 USB 28-6-2004 Mon 0420 (SI)
6855.0 V02a V2a, fair/readable, ID is 68791 42211 23466 USB
21-6-2004 Mon 0300 (CrA-1)
6855.0 V02a V2a, fair/readable, ID is 68792 20841 05591, family
radio on 6855 at 0305z USB 28-6-2004 Mon 0300 (CrA-1)
6855.0 V02a AM 28-6-2004 Mon 0303 (TN)
6855.0 V02a under SWBC station AM 28-6-2004 Mon 0305 (TN)
6887.0 G06 842-657/39=97320 AM 24-6-2004 Thu 1830 (HFD)
6912.0 E10 CI02//4015 USB 2-6-2004 Wed 0045 (BS4)
6912.0 E10 CI02 AM 5-6-2004 Sat 1845 (JS3)
6912.0 E10 CI02 USB 17-6-2004 Thu 1945 (GG)
6912.0 E10 CI02// USB 23-6-2004 Wed 0046 (TN)
6930.0 E10 SYN2//5170 USB 2-6-2004 Wed 0045 (BS4)
6930.0 E10 SYN2 AM 5-6-2004 Sat 1845 (JS3)
6930.0 E10 SYN2 USB 17-6-2004 Thu 1945 (GG)
6930.0 E10 SYN2 USB 23-6-2004 Wed 0046 (TN)
6933.0 M13 757 (R5) BT 262 2. BT (extremely weak, missed GC) CW
4-6-2004 Fri 2145 (MS)
6959.0 E03 08533 USB 15-6-2004 Tue 1800 (GG)
6959.0 E03 44947 USB 17-6-2004 Thu 1900 (GG)
7032.9 M89 V CP17 DE L9CC CW 22-7-2004 2041 (WP3)
7038.9 MX Cluster beacon "S" CW 31-7-2004 Sat 2031 (AB)
7322.0 E10 FTJ 2 msgs : 29 AODVW/13 QGCDF USB 17-6-2004 Thu 1930
(GG)
7519.0 M08a M8a, weak/partially readable, caught tailend CW
28-6-2004 Mon 1300 (CrA-1)
7526.0 M08a M8a, fair/readable, ID is 33442 11882 69372, AR=OE
BT=K CW 22-6-2004 Tue 2200 (CrA-1)
7540.0 E10 JSR 35 JTCZQ USB 17-6-2004 Thu 1900 (GG)
7760.0 E10 ULX2//6270 USB 2-6-2004 Wed 0100 (BS4)
7918.0 E10 YHF 13 LAJID USB 2-6-2004 Wed 0130 (BS4)
7918.0 E10 YHF 49 LYHXO AM 5-6-2004 Sat 1800 (JS3)

7918.0 E10 YHF2 USB 15-6-2004 Tue 0200 (GG)
7918.0 E10 YHF 49 LYHX0 USB 15-6-2004 Tue 1800 (GG)
7918.0 E10 YHF2 USB 20-6-2004 Sun 0200 (GG)
7918.0 E10 YHF USB 23-6-2004 Wed 0130 (TN)
7918.0 E10 JEQWV NSBMS AIHUG OZSOT ZTLLN USB 23-6-2004 Wed 0140 (TN)
7918.0 E10 YHF USB 23-6-2004 Wed 0200 (TN)
7926.0 M08a M8a, fair/readable, into message CW 29-6-2004 Tue 2200 (CrA-1)
8000 E10 ABC AM 4-7-2004 1800 (RiN)
8009.0 M08a ID 22649 88564 07044 (AR=OE, BT=K) CW 10-6-2004 Thu 2200 (MS)
8009.0 M08a M8a, strong/readable, into message CW 23-6-2004 Wed 2300 (CrA-1)
8010.0 M08 CW 23-6-2004 Wed 0800 (SCV)
8010.0 M08a ID 74881 61582 03252 (AR=OE, BT=K) CW 7-6-2004 Mon 0800 (MS)
8103 M22 4XZ. Israeli navy Haifa CW 12-7-2004 1910 (ML4)
8135.0 M08a ID 22642 63243 64613 (AR=OE, BT=K) CW 1-6-2004 Tue 2300 (MS)
8135.0 M08a ID 22649 88564 07044 (AR=OE, BT=K) (rpt of 2200z on 8009m) CW 10-6-2004 Thu 2300 (MS)
8135.0 M08a M8a, fair/readable, ID is 334422 11822 69372, rpt of 2200 on 7526, AR=OE BT=K CW 22-6-2004 Tue 2300
8135.0 M08a M8a, strong/readable, ID is 33445 11825 69375, BT=K AR=OE CW 25-6-2004 Fri 2300 (CrA-1)
8135.0 M08a M8a, fair/readable, ID is 47711 64901 91064 CW 29-6-2004 Tue 2300 (CrA-1)
8136.0 M08a ID 78082 72341 85506 (AR=OE, BT=K) CW 5-6-2004 Sat 1100 (MS)
8246.5 M13a? CW 28-6-2004 Mon 0310 (TN)
8251.0 E07 246:0 AM 9-6-2004 Wed 0510 (HFD)
8251.0 E07 246:0 AM 18-6-2004 Fri 0510 (HFD)
8255.0 XSL USB 25-6-2004 Fri 1300 (TN)
8313 XSL Slot machine 5-7-2004 1316 (TI)
8313.0 XSL slot machine, S5 USB 23-6-2004 Wed 1130 (ZW)
8313.0 XSL USB 25-6-2004 Fri 1300 (TN)
8588 XSL Slot machine 5-7-2004 1316 (TI)
8588.0 XSL slot machine, S7, strongest on this freq here USB 23-6-2004 Wed 1130 (ZW)
8621 V26 Chinese/English numbers station //6448 kHz LSB 21-7-2004 1200 (TY)
8677.0 M13 284 (r5) BT 237 24 BT CW 5-6-2004 Sat 0400 (MS)
8703.5 XSL slot machine, S5 USB 23-6-2004 Wed 1130 (ZW)
8703.5 XSL USB 25-6-2004 Fri 1300 (TN)
8703.5 XSL Slot machine 5-7-2004 1317 (TI)
8805.0 E10 PCD2 USB 16-6-2004 Wed 1730 (GG)
9061.0 M08a S7 here CW 10-6-2004 Thu 0400 (ZW)

9062.0 M08a Strong, S9 CW 23-6-2004 Wed 0500 (ZW)
 9130.0 E10 EZI2//6840 USB 2-6-2004 Wed 0100 (BS4)
 9130.0 E10 EZI 86 QBFFA, Repeat of 2130Z 30 May USB 2-6-2004 Wed 0130 (BS4)
 9130.0 E10 EZI Group 96 LLEDG //6840 USB 12-6-2004 Sat 0130 (DM)
 9130.0 E10 EZI2 USB 15-6-2004 Tue 1800 (GG)
 9130.0 E10 EZI 44 LMY0B USB 15-6-2004 Tue 2330 (GG)
 9130.0 E10 EZI 43 LMY0B USB 16-6-2004 Wed 1730 (GG)
 9130.0 E10 EZI2 USB 17-6-2004 Thu 1930 (GG)
 9130.0 E10 EZI2 USB 23-6-2004 Wed 0205 (TN)
 9139.0 5LG ?? CW 23-6-2004 Wed 0140 (TN)
 9153.0 M08a ID 69443 03232 85505 (AR=OE, BT=K) CW 4-6-2004 Fri 1000 (MS)
 9153.0 M08a ID 10392 27372 52721 (AR=OE, BT=K) CW 7-6-2004 Mon 1000 (MS)
 9153.0 V02a V2a, strong/readable, barely no static, into message, weak V2a in bg AM 25-6-2004 Fri 1300 (CrA-1)
 9202.0 E10 YHF2 USB 20-6-2004 Sun 0200 (GG)
 9202.0 E10 into msg USB 23-6-2004 Wed 0205 (TN)
 9238.0 M08a ID 48693 89181 64941 (AR=OE, BT=K) CW 7-6-2004 Mon 0900 (MS)
 9239 V25 Chinese YL AM 29-6-2004 1500 (TY)
 9251.0 E03 95276 95246 ...5NG read by YL...over and over...also wobbling sound (jammer !) USB 12-6-2004 Sat 2110
 9251.0 E03 08533 USB 15-6-2004 Tue 1800 (GG)
 9251.0 E03 44947 USB 17-6-2004 Thu 1900 (GG)
 9272.0 E06 690:0 AM 13-6-2004 Sun 1930 (HFD)
 9310.0 S06 ip AM 2-6-2004 Wed 2008 (HFD)
 9323.0 V02a S9+20 dB AM 10-6-2004 Thu 0400 (ZW)
 9330.0 M08a (uncopiable - blocked by religious broadcast) CW 2-6-2004 Wed 1200 (MS)
 9330.0 M08a (Completely blocked by AM religious broadcast) CW 4-6-2004 Fri 1200 (MS)
 9330.0 M08a (QRM Blocks signal - unreadable) CW 7-6-2004 Mon 1200 (MS)
 9330.0 M08a S9 + 20 dB over top of BC QRM CW 30-6-2004 Wed 0400 (ZW)
 9331.0 M08a ID 69441 85503 73244 (AR=OE, BT=K) CW 2-6-2004 Wed 1000 (MS)
 9331.0 M08a good signal, S9 CW 23-6-2004 Wed 1200 (ZW)
 9331.0 V02a QRM from RTTY but very readable at S9+20db AM 14-6-2004 Mon 0006 (Vambo)
 9476.0 E07 246:0 AM 18-6-2004 Fri 0530 (HFD)
 9950.0 E11 E11, fair/readable, ID is 183, no message USB 22-6-2004 Tue 1300 (CrA-3)
 10046.0 M22 CW 12-6-2004 Sat 0520 (TN)
 10046.0 M22 low level mail voice in background CW 23-6-2004 Wed 0025 (TN)

10046.0 M22 CW 23-6-2004 Wed 0140 (TN)
10046.0 M22 VVV DE 4XZ, then tfc CW 23-6-2004 Wed 0345 (ZW)
10046.0 M22 M22, fair/readable, repeating VVV de 4XZ CW 27-6-2004 Sun 0000 (CrA-1)
10046.0 M23 CW 14-6-2004 Mon 2330 (TN)
10119.0 M08a Strong, S9+ CW 23-6-2004 Wed 0500 (ZW)
10125.0 M08a M8a, fair/readable, i/p CW 29-6-2004 Tue 0300 (CrA-1)
10126 M08a in progress CW 1-7-2004 0920 (TY)
10126.0 M08a ID 69441 85503 73244 (AR=OE, BT=K) (rpt of 1000z on 9331m) CW 2-6-2004 Wed 1100 (MS)
10126.0 M08a ID 69443 03232 85505 (AR=OE, BT=K) (rpt of 1000z on 9153m) CW 4-6-2004 Fri 1100 (MS)
10126.0 M08a ID 48691 25942 72602 (AR=OE, BT=K) CW 5-6-2004 Sat 0900 (MS)
10126.0 M08a ID 10392 27372 52721 (AR=OE, BT=K) CW 7-6-2004 Mon 1100 (MS)
10234.0 M08a M8a, strong/readable, into message CW 23-6-2004 Wed 0400 (CrA-1)
10235.0 M08a CW 23-6-2004 Wed 0400 (ZW)
10235.0 M08a M8a, strong/readable, ID is 41922 45062 68996 BT=K AR=OE CW 27-6-2004 Sun 0400 (CrA-1)
10235.0 M08a S9 CW 30-6-2004 Wed 0400 (ZW)
10248.0 M16 CW 23-6-2004 Wed 0145 (TN)
10344.0 M08a ID 93391 87391 11233 (AR=OE, BT=K) CW 5-6-2004 Sat 1100 (MS)
10426.0 E03 USB 21-6-2004 Mon 2200 (DM)
10446.0 M08a ID 69442 69613 85504 (AR=OE, BT=K) CW 3-6-2004 Thu 1100 (MS)
10446.0 V02a V2a, strong/readable, ID is 83461 43141 64381, rpt of 0200 on 12165 USB 21-6-2004 Mon 0300 (CrA-1)
10446.0 V02a V2a, strong/readable, into message, nasty hum on carrier USB 23-6-2004 Wed 0300 (CrA-1)
10446.0 V02a V2a, fair/readable, ID is 99541 43142 64382, weak V2a in bg, rpt of 0200 on 1216 USB 28-6-2004 Mon 0300
10446.0 V02a distorted signal tape ghosting AM 28-6-2004 Mon 0310
10446.0 V02a V2a, fair/readable, ID is 54856 42976 99542 USB 30-6-2004 Wed 0300 (CrA-1)
10446.0 V02a Very strong S9+ USB 30-6-2004 Wed 0300 (ZW)
10460.0 M22 == vvv de 4xz 4xz == +5LG (many msgs) to many grps CW 7-6-2004 Mon 0001 (SW)
10566.0 M08a ID 86731 86782 80082 (rpt of 1200z on 9330m)(did not use the AR=OE, BT=K format, CW 2-6-2004 Wed 1300 (MS)
10566.0 M08a ID 20563 66731 35471 (AR=OE, BT=K) CW 4-6-2004 Fri 1300 (MS)
10566.0 M08a ID 61422 66733 35473 (AR=OE, BT=K) CW 7-6-2004 Mon 1300 (MS)
10566.0 M08a very strong, S9 + 20 dB CW 23-6-2004 Wed 1300 (ZW)
10566.0 M08a M8a, strong/readable, into message, pauses in middle

of xmsn, then jumps back in CW 28-6-2004 Mon 1300
 10714.0 M08a M8a, strong/readable, into message, V2a accompaniment
 CW 22-6-2004 Tue 0200 (CrA-1)
 10714.0 M08a M8a, fair/readable, i/p CW 29-6-2004 Tue 0200 (CrA-1)
 10714.0 V02a V2a, fair/readable, into message, in between cut
 numbers, M8a accompaniment USB 22-6-2004 Tue 0200
 10822 M89 V BFR7 BFR7 BFR7 de 4XML 4XML CW 2-7-2004 0132 (JUM)
 10858.0 M08a (late start - no calls copied) CW 1-6-2004 Tue 1204
 10858.0 M08a ID 20562 26783 80083 (AR=OE, BT=K) CW 3-6-2004 Thu
 1200 (MS)
 10858.0 M08a ID 61421 66732 35472 (AR=OE, BT=K) CW 5-6-2004 Sat
 1200 (MS)
 10871.9 MX Cluster beacon "S" CW 31-7-2004 Sat 2031 (AB)
 10872.2 MX Cluster beacon "F" CW 2-7-2004 0132 (JUM)
 10872.3 MX Cluster beacon "K" CW 5-7-2004 1644 (WC)
 10872.4 MX Cluster beacon "M" CW 2-7-2004 0132 (JUM)
 10872.4 MX Cluster beacon "M" CW 5-7-2004 1644 (WC)
 11018.0 XP msg AM 18-6-2004 Fri 0620 (HFD)
 11120.0 S06 149-452/407=10778 AM 12-6-2004 Sat 1800 (HFD)
 11132.0 E07 113, very weak AM 3-6-2004 Thu 2050 (HFD)
 11132.0 E07 113:1-751/44=83525 AM 17-6-2004 Thu 2050 (HFD)
 11470.0 E06 690:0 AM 13-6-2004 Sun 1830 (HFD)
 11470.0 E06 E6, weak/readable, sked 690, no message, 000000 AM
 27-6-2004 Sun 1830 (CrA-3)
 11480.0 E06 296:0 AM 2-6-2004 Wed 2100 (HFD)
 11545 E03 LP. Id 92759 USB 31-7-2004 Sat 2100 (AB)
 11545.0 E03 Lincolnshire Poacher 78321 USB 12-6-2004 Sat 2000
 11545.0 E03 44947 USB 17-6-2004 Thu 1900 (GG)
 11565.0 E10 EZI USB 5-6-2004 Sat 0400 (MS)
 11565.0 E10 EZI2 USB 5-6-2004 Sat 0500 (MS)
 11565.0 E10 EZI 44 LMY0B USB 15-6-2004 Tue 2330 (GG)
 11565.0 E10 EZI2 USB 17-6-2004 Thu 1900 (GG)
 11565.0 E10 EZI2 USB 17-6-2004 Thu 1930 (GG)
 11565.0 E10 E10, weak/partially readable, into message USB
 28-6-2004 Mon 0300 (CrA-1)
 11565.0 M08a ID 33811 32011 84441 (AR=OE, BT=K) CW 5-6-2004 Sat
 0400 (MS)
 11565.0 M08a S9+20 dB CW 10-6-2004 Thu 0400 (ZW)
 11565.0 M08a M8a, weak/readable, into message CW 26-6-2004 Sat 0400
 (CrA-1)
 11566.0 V02a V2a, weak/readable, into message USB 25-6-2004 Fri
 0300 (CrA-1)
 11612.0 M13 517 (R5) BT 242 21 BT CW 21-6-2004 Mon 1900 (MS)
 11612.0 M13 517 (R5) BT 242 21 BT CW 21-6-2004 Mon 2000 (MS)
 11612.0 M13 517 (R5) BT 242 21 BT CW 22-6-2004 Tue 1900 (MS)
 11612.0 M13 517 (R5) BT 242 21 BT (rpt of 1900z on 11612m) CW
 22-6-2004 Tue 2000 (MS)
 12093.0 M08a ID 20562 26783 80083 (AR=OE, BT=K) (rpt of 1200z on

10858m) CW 3-6-2004 Thu 1300 (MS)

12115.0 E07 113 AM 3-6-2004 Thu 2030 (HFD)

12115.0 E07 113:1-751/44=83525 AM 17-6-2004 Thu 2030 (HFD)

12119.0 M08a QRM from RTTY signal CW 22-6-2004 Tue 0100 (DM)

12119.0 M08a M8a, weak/mostly unreadable, covered by Rtty, into message CW 22-6-2004 Tue 0100 (CrA-1)

12119.0 M08a M8a, fair/readable, i/p, rtty qrm CW 29-6-2004 Tue 0100 (CrA-1)

12165.0 V02a V2a, fair/readable, into mesasge, tone on carrier, tone goes away when numbers a USB 7-6-2004 Mon 0200

12165.0 V02a V2a, fair/readable, ID is 83461 43141 64381, number machine problems, open mic w AM 21-6-2004 Mon 0200

12165.0 V02a V2a, fair/readable, ID is 99541 43142 64382, many mistakes tonight USB 28-6-2004 Mon 0200 (CrA-1)

12165.0 V02a AM 28-6-2004 Mon 0235 (TN)

12180.0 V02a V2a, strong/readable, into message, static free USB 23-6-2004 Wed 0200 (CrA-1)

12190.0 S06 384:0 AM 14-6-2004 Mon 2115 (HFD)

12215.0 V02a V2a, fair/readable, ID is 99541 43142 64382, operator started xmsn on wrong freq USB 28-6-2004 Mon 0200

12325.0 M13 261 (R5) BT 281 21 BT CW 6-6-2004 Sun 1900 (MS)

12325.0 M13 261 (R5) BT 281 21 BT (rpt of 1900z on 12325m) CW 6-6-2004 Sun 2000 (MS)

12603.0 E03 3999? -QRM from strong CW source: DE SVO USB 10-6-2004 Thu 2200 (DM)

12603.0 E03 E3, fair/readable, into message USB 22-6-2004 Tue 2100 (CrA-1)

12603.0 E03 E3, weak/readable, into message USB 29-6-2004 Tue 2200 (CrA-1)

12984.0 M22 5 number groups in fast CW just above the noise floor CW 14-6-2004 Mon 0004 (Vambo)

13158.0 M13 714 (R5) BT 237 22 BT CW 10-6-2004 Thu 2000 (MS)

13257.0 M13 253 (R5) BT 240 23 BT CW 3-6-2004 Thu 2000 (MS)

13257.0 M13 253 (R5) BT 240 23 BT CW 4-6-2004 Fri 2000 (MS)

13257.9 MX Cluster beacon "S" CW 31-7-2004 Sat 2031 (AB)

13417.0 XP XP, fair/readable, null message, ID is probably 401 AM 8-6-2004 Tue 2020 (CrA-2)

13417.0 XP XP, weak/readable, ID is 545, null message, much weaker than 2000z xmsn AM 24-6-2004 Thu 2020 (CrA-1)

13436.0 V02a V2a, fair/readable, into message USB 22-6-2004 Tue 0100 (CrA-1)

13511.0 E07 113 AM 3-6-2004 Thu 2010 (HFD)

13511.0 E07 113:1-751/44=83525 AM 17-6-2004 Thu 2010 (HFD)

13533.0 E10 EZI 43 LMYOB USB 16-6-2004 Wed 1730 (GG)

13940.0 S06 149-452/407=10778 AM 12-6-2004 Sat 1700 (HFD)

14487.0 E03 Moderate signal S4-S5 QSB USB 10-6-2004 Thu 1300 (ZW)

14487.0 E03 extremely weak USB 11-6-2004 Fri 1300 (ZW)

14487.0 E03 USB 25-6-2004 Fri 1410 (TN)

14520.0 S06 384:0 AM 14-6-2004 Mon 2015 (HFD)
 14597.0 XP XP, fair/readable, null message, ID is probably 401 AM
 8-6-2004 Tue 2000 (CrA-2)
 14598.0 XP XP, very weak/readable, null message, ID is probably
 401 AM 8-6-2004 Tue 2000 (CrA-1)
 14598.0 XP 0-msg AM 17-6-2004 Thu 2000 (HFD)
 14598.0 XP XP, weak/readable, ID is 545, null message, sigs are
 S1-S2 AM 24-6-2004 Thu 2000 (CrA-1)
 14598.0 XP XP, weak/readable, ID 454, null message AM 29-6-2004
 Tue 2000 (CrA-1)
 14620.0 V07 635:0 AM 3-6-2004 Thu 0600 (HFD)
 15682.0 E03 extremely weak; intentional SSB QRM on top USB
 11-6-2004 Fri 1300 (ZW)
 15682.0 E03 Very weak, S1 USB 24-6-2004 Thu 1300 (ZW)
 15682.0 E03 USB 25-6-2004 Fri 1411 (TN)
 16084.0 E03 extremely weak USB 11-6-2004 Fri 1300 (ZW)
 16084.0 E03 Extremely weak, S0 USB 24-6-2004 Thu 1300 (ZW)
 16084.0 E03 vry weak USB 25-6-2004 Fri 1412 (TN)
 16221 X06 Dep of State Comms, Moscow. 31-7-2004 0752 (LDO)
 16320.0 V07 635:0 AM 3-6-2004 Thu 0620 (HFD)
 16331.9 MX Cluster beacon "S" CW 31-7-2004 Sat 2031 (AB)
 18247 M42 Dep of State Comms, Moscow. Tfc on link 00063 MFSK32
 31-7-2004 0824 (LDO)
 18415 M16 8BY. DGSE related CW 17-7-2004 1853 (AJP)
 18506 M42 Dep of State Comms, Moscow. Tfc on link 60047 MFSK32
 31-7-2004 0816 (LDO)
 18864 E04 Cherry Ripe, Id 17166 USB 1-7-2004 2300 (JUM)
 18864 E04 Cherry Ripe, Id 68984 USB 2-7-2004 0001 (JUM)
 18864.0 E04 in progress USB 15-6-2004 Tue 2322 (GG)
 18864.0 E04 E3a, very weak, only the tune was heard, ID is 35197
 USB 22-6-2004 Tue 2300 (CrA-1)
 18864.0 E04 E3a, fair/readable, ID is 35197 USB 22-6-2004 Tue 2300
 (CrA-2)
 20946 M16 8BY, caught tail end CW 22-6-2004 Tue 1455 (TN)
 21866 E04 Cherry Ripe, Id 17166 USB 1-7-2004 2300 (JUM)
 21866 E04 Cherry Ripe, Id 68984 USB 2-7-2004 0001 (JUM)
 21866.0 E04 E3a, weak/readable, ID is 35197 USB 22-6-2004 Tue 2300
 (CrA-2)

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